Date: Fri, 18 Feb 94 04:30:52 PST
From: Ham-Homebrew Mailing List and Newsgroup <ham-homebrew@ucsd.edu>
Errors-To: Ham-Homebrew-Errors@UCSD.Edu
Reply-To: Ham-Homebrew@UCSD.Edu
Precedence: Bulk
Subject: Ham-Homebrew Digest V94 #34
To: Ham-Homebrew

Ham-Homebrew Digest Fri, 18 Feb 94 Volume 94 : Issue 34

Today's Topics:

Send Replies or notes for publication to: <Ham-Homebrew@UCSD.Edu>
Send subscription requests to: <Ham-Homebrew-REQUEST@UCSD.Edu>
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Ham-Homebrew Digest are available
(by FTP only) from UCSD.Edu in directory "mailarchives/ham-homebrew".

Date: Fri, 18 Feb 1994 03:22:26 GMT
From: agate!howland.reston.ans.net!vixen.cso.uiuc.edu!sdd.hp.com!col.hp.com!
srgenprp!alanb@network.ucsd.edu
Subject: Frequency doubler design, help, VFO.
To: ham-homebrew@ucsd.edu

asirene@ntuvax.ntu.ac.sg (asirene@ntuvax.ntu.ac.sg) wrote:

: ... I have also built a 40 meter VFO from the QRP tranceiver designs in
: the 1994 ARRL Handbook and they work. But when I use the VFO with the freq.
: doubler circuit from the September 1993 issue of CQ, I found the output to
: be too weak and fundamental frequency rejection is insufficient.

I'm not familiar with either the VFO or doubler design, but how about

this idea: Build another VFO, but with all the frequency-determining coils and capacitors 1/2 the value. You would end up with a VFO that tunes 14-14.6, assuming the 40 meter version tunes 7-7.3. You could reduce the tuning capacitor size even further (i.e. make it about 1/4 the size instead of 1/2) to reduce the tuning range.

AL N1AL

Date: 17 Feb 1994 13:51:03 -0800
From: swrinde!cs.utexas.edu!news.unt.edu!news.oc.com!news.kei.com!ssd.intel.com!chnews!ornews.intel.com!ornews.intel.com!not-for-mail@network.ucsd.edu
Subject: gasFETs for preamps
To: ham-homebrew@ucsd.edu

I finally toasted the gasFET in my old Hamtronics 2 meter preamp somehow.
I called Hamtronics and they said that they are an appliance outlet only now.
What is a good, cheap source for these devices? Mine was supposed to have been .7 db noise with 13-20 db gain, that's all I know.

Other than soldering them in, what are the hazards once installed? How much loosely capacitively coupled energy can the gate take? What is the detrimental effect of installing the preamp inside a rig after a chain of PIN diodes and other junK? (other than a hacked up rig, of course).
I don't want to mast mount it and I use 75 ohm 3/4" hardline.
Thanks,

--
zardoz@ornews.intel.com WA7LDV

Date: Fri, 18 Feb 1994 03:28:43 GMT
From: agate!msuinfo!harbinger.cc.monash.edu.au!bruce.cs.monash.edu.au!trlluna!titan!pcies4.trl.OZ.AU!drew@network.ucsd.edu
Subject: homebrew SSB xtal filters
To: ham-homebrew@ucsd.edu

In article <13751@tekig7.PEN.TEK.COM> jimla@tekig1.PEN.TEK.COM (James G Larsen) writes:
>From: jimla@tekig1.PEN.TEK.COM (James G Larsen)
>Subject: homebrew SSB xtal filters
>Date: 16 Feb 94 04:27:30 GMT
>Hi,
>

>Has anyone built a ladder filter for SSB using cheap crystals? My
>Digi-Key catalog has a wide selection from 3.579 MHz to 60 MHz for
>$1.00 - $1.50 each. How many crystals are needed for 30-40 dB sideband
>supression? What are the factors in selecting the carrier frequency?
>If I want a 2.7 KHz bandwidth, does that determine the useable crystal
>frequency range? Digi-Key sells CTS, Epson, and ECS crystals. Does
>one brand work best?
>
>Thanks!
>
>Jim
>N7IHQ

The mysteries of Internet. Your original posting showed up!

About 4 or 5 xtals will be needed to obtain satisfactory sideband rejection. However, not stated in published articles (that I have seen) is the improved sideband rejection obtainable by building your filter into a little in-line compartmented box- made from scraps of circuit board, tin-plate or brass sheet. One xtal and capacitor in each compartment, with a small hole for the connection between.

You must do some math and figure the best IF for the job. Select VFO, carrier (BFO on receive or transceiver) for minimum in-band and nearby spur production (considering harmonics of both oscillators to at least the fifth, and preferably seventh (complex subject)). If you choose a round-numbered IF (most xtals are); then you can simply employ a well-shielded frequency counter (measuring those kHz digits to the right of whole MHz and applying any necessary correction factor for the BFO) for the dial.

The bandwidth(pass) is chiefly determined by the value of coupling capacitor, those that connect each end of the filter, and those to ground at each xtal connection. Increasing C DECREASES the bandwidth. Minimum pass-band ripple is obtained when the input and and output impedances of the filter match the driving and load Z's respectively. However; even with poor matching, the ripple will probably not be too bad, and loss should not be excessive.

The xtals are made cheaply in huge batches, and match each other very closely in frequency. However, when purchasing, make sure that they are all of the same brand, and do not mix different makes of xtal in any one filter.

73, Drew, VK3XU. Telecom Australia Research Laboratories

"If you ain't handsome- then at least be handy"
(The Red-Green Show)

Date: 17 Feb 1994 22:34 CST
From: agate!howland.reston.ans.net!cs.utexas.edu!swrinde!menudo.uh.edu!
jane.uh.edu!st3a5@network.ucsd.edu
Subject: Laser jammer wanted
To: ham-homebrew@ucsd.edu

Does anyone have any information regarding the building of speed-detector jamm-
ers ? If so please post or send me message by email.
Later,
Dvj

Dawn V John (st3a5@jetson.uh.edu)
ELEE undergrad
:-) "It's yesterday once more......" so sang the carpenters.
****
And God rested on the SEVENTH day.
Imp. Note:
He did not live here in the US when he created the world.
****

Date: 17 Feb 1994 15:41:34 GMT
From: orca.es.com!bambam!angerhof@uunet.uu.net
Subject: Motorola 1470A: can it be modified for 2meter band?
To: ham-homebrew@ucsd.edu

I was recently given an old Motorola car phone, model 1470A. I opened up
the massive electronics box (which weighs about 50 pounds) and found
plug-in units which were labeled something like this: T - 158.520 R - 152.08.
As there were 7 such units, I am guessing there are 7 channels available
for the phone use.

Can this unit be easily adapted to transmit and receive on the 2M band?

Any opinions on this particular model, is it worth the trouble to try the
modifications?

--Norman AA7QG angerhof@dsd.es.com

--
Norman Angerhofer angerhof@dsd.es.com
540 Arapeen Dr.
SLC, UT 84108

Date: Thu, 17 Feb 1994 22:31
From: agate!library.ucla.edu!news.mic.ucla.edu!MVS.OAC.UCLA.EDU!
OSYSMAS@network.ucsd.edu
Subject: Power supply design questions (sort of long)
To: ham-homebrew@ucsd.edu

> I'm curious why the MOV is on the line side of the switch. I'd
> put it on the load side so that it wouldn't pop without the
> device being turned on. It may save you having to replace it
> when there was little possibility of damaging your PS.

I'd recommend moving the MOV to the transformer side of the
switch too. Otherwise when you turn off the switch the residual
energy in the transformer core may (will sometimes) arc over in
your switch. This arc can destroy the switch especially if the
transformer is large (lots of stored energy and it has to go
somewhere).

Date: Fri, 18 Feb 1994 04:12:27 GMT
From: agate!howland.reston.ans.net!vixen.cso.uiuc.edu!sdd.hp.com!col.hp.com!
srgenprp!alanb@network.ucsd.edu
Subject: Surface-mount technology?
To: ham-homebrew@ucsd.edu

Uri Blumenthal (uri@watson.ibm.com) wrote:
: Hi, folks!

: Anybody did any PCB with surface-mount chips
: on it? Preferably big ones (:-), like 112 pins?
: Wanna share your experience? Can you etch such
: a board at home (considering the accuracy
: required - there's between 0.3 and 0.7 mm
: between the pins!)? Can you solder such
: a beast, and how (assuming you don't have
: a reflow oven at home :-)?

You can solder with a fine-tipped iron, a steady hand, and good eyes
(or a magnifying glass). Make sure you have some solder-wicking braid
on hand for the inevitable solder bridges.

Actually soldering isn't so hard, but unsoldering a multi-pin SMT
IC is virtually impossible without special tools. (A heat gun works,
but will likely unsolder other nearby components and may scorch the
PC board.)

To make the board, I use a laser printer and the special paper
sheets designed to iron onto the PC board. You soak the paper off,
and the toner remains on the board to act as resist.

AL N1AL

Date: 18 Feb 94 06:44:50 GMT
From: zib-berlin.de!news.th-darmstadt.de!fauern!rz.unibw-muenchen.de!
claude@uunet.uu.net
Subject: Valvo GmbH
To: ham-homebrew@ucsd.edu

ucgapam@ucl.ac.uk (Patrick Martin) writes:
>
>I am looking for 2 radio frequency transistors.
>
>BFW60D and BFR35A
>
>They are apparently made by a company in Germany called Valvo but I have not been
able to learn anything else about them.
>
>Does anyone know the address or phone number of Valvo, or of a supplier of these
2 components.
>
Valvo is a subsidiary of Philips (Nederlands). Valvo's headquarters are in
Hamburg. I do not have the exact address here.

Mullard is another Philips subsidiary based on UK. Usualy you can get most
of the products of the one company by the other one.
--
Claude F. (claude@bauv106.bauv.unibw-muenchen.de)

This message may contain opinions which are not shared by my employer.
The facts can speak for themselves.

Date: Fri, 18 Feb 1994 04:24:36 GMT
From: agate!howland.reston.ans.net!cs.utexas.edu!sdd.hp.com!col.hp.com!srgenprp!
alanb@network.ucsd.edu
Subject: What test equipment do you use?
To: ham-homebrew@ucsd.edu

Michael Silva (mjsilva@ted.win.NET) wrote:

: As homebrewers, what test equipment do you use in getting your

: projects working? Are you using 'scopes, freq. counters, signal
: generators, sweep generators, GDO's, spectrum analysers? Any other
: obvious things I've forgotten at 1AM? Comments?

Must have: Multimeter (volts/ohms/amps), power supply (preferably
adjustable voltage), the usual hand tools.

Very nice to have: Audio signal generator/function generator,
RF signal generator(s), frequency counter, cheap oscilloscope, variable-
voltage AC transformer (Variac), logic probe, grid-dip oscillator.

Nice to have, but probably too expensive: Spectrum analyzer,
impedance bridge, sweep oscillator/network analyzer, digital oscilloscope,
logic analyzer, transistor parameter analyzer, IC tester, tube tester (;=)

AL N1AL

Date: Fri, 18 Feb 1994 00:25:46 GMT
From: agate!howland.reston.ans.net!news.moneng.mei.com!uwm.edu!msuinfo!
harbinger.cc.monash.edu.au!bruce.cs.monash.edu.au!trlluna!titan!pcies4.trl.OZ.AU!
drew@network.ucsd.edu
To: ham-homebrew@ucsd.edu

References <13751@tekig7.PEN.TEK.COM>, <CLAzFz.Iwn@news.direct.net>,
<2jtcbf$7t8@usenet.INS.CWRU.Edu>ger.cc
Subject : Re: homebrew SSB xtal filters

In article <2jtcbf$7t8@usenet.INS.CWRU.Edu> trier@odin.ins.cwru.edu (Stephen C.
Trier) writes:
>From: trier@odin.ins.cwru.edu (Stephen C. Trier)
>Subject: Re: homebrew SSB xtal filters
>Date: 16 Feb 1994 14:58:55 GMT
>In article <CLAzFz.Iwn@news.direct.net>,
>Cecil Moore <kg7bk@indirect.com> wrote:
>>Jim, if you can get access to a late '50s - early 60's ARRL Handbook,
>>your questions will be answered.
>
>The _W1FB Design Notebook_ reprints some articles on crystal ladder
>filters, too. It's still in print, so it might be a little easier to
>find.
>
>   Stephen
>
>--
>Stephen Trier KB8PWA   Dave: [H]as anyone ever met a Zamboni driver?
>Other: trier@ins.cwru.edu   Mike: The next version of OS/2 will include a

>Home: sct@po.cwru.edu Zamboni driver. Let's see Microsoft top that!
> (dave@cs.arizona.edu & miked@vnet.ibm.com)

I missed the original post on this thread. If not already mentioned, look up also:

"Switchable Bandwidth Crystal Filter" Pivnichny N2DCH
Ham Radio Feb. '90.

and

"Designing and Building Simple Crystal Filters" Hayward W7ZOI
QST July '87.

Some pretty good starting values for the coupling C's are given. My own impirical work confirms the ball-park values for C. For a 1.8kHz band-pass using 4, 4.433, 5, or 6MHz crystals; C's need to be about 33pF. However, at (say) 8MHz, about 220pF C's will be required for a similar band-pass.

73, Drew, VK3XU Telecom Australia Research Laboratories.

End of Ham-Homebrew Digest V94 #34
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